Honeywell

Case Study

Honeywell's Alarm Management Software Radically Reduces Alarm Loads at SMC to Safeguard Performance

"The alarm rationalization enables operators to make better decisions for a more effective operation. It's helped them move operations from being reactive to robust."

Masoud Al Maashani, Maintenance Manager, Salalah Methanol Company

Said Al Asmi, Operations Manager, Salalah Methanol Company

Kadamanchi Jangaiah, Alarm Champion, Salalah Methanol Company

Asish Thampi, Senior DCS Engineer, Salalah Methanol Company

Background

Since commercial operation at the Salalah Methanol Company (SMC) began in 2010 it has continued apace. The plant produced its first 3 million metric tonnes of methanol by February 2013. By January 2014, it had produced 4 million.

A wholly-owned subsidiary of the state's Oman Oil Company, it produces Methanol from sweet natural gas supplied by pipeline from the Oman Gas Company. The fuel serves domestic demand, as well as export markets. Located in the Salalah Free Zone of Oman's second largest city, it sits alongside the Southern city's port shipping more than 7 million tonnes of cargo a year.

With 3125 metric tons per day capacity and related utilities and off-sites, the plant includes captive power generation, water desalination units and a waste water treatment plant.

SMC has always been a strong performer. It recorded one of the fastest start-ups of any methanol plant, reaching 100 per cent on specification methanol production within twelve days. It has since been recognised as the top performer among Oman Oil's subsidiaries.

As well as strong production performance, the plant has enjoyed an excellent safety record. In March 2013 it passed 2 million man hours worked with no lost time injuries.
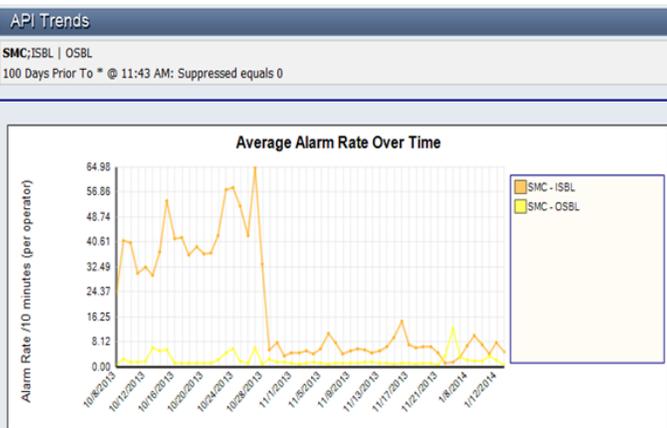
Benefits

Honeywell helped SMC safeguard its record and reputation with an alarm management system to bolster operator effectiveness.

Honeywell's alarm management software helped eliminate nuisance alarms requiring no action and allowing operators to concentrate on addressing priority alarms effectively.

Tackling alarm overloads and floods, an average alarm rate for the process was cut from 48 alarms every 10 minutes to just eight. Alarms for the utilities were cut from eight to two every ten minutes. The number of alarms overall was reduced from more than 100,000 to under 10,000.

The reduction in loads means operators can now take appropriate action in response to all remaining alarms. A radical reduction in average alarm rates following implementation, Said Al Asmi – SMC Operations Manager, said: "The alarm rationalization enables operators to make better decisions for a more effective operation. It's helped them move operations from being reactive to robust".

Further benefits are also expected from the plant's planned upgrade to Release 410 of Experion® PKS. Integration with the master alarm database will allow access to alarm documentation through the operator console in the alarm display. In anticipation of this, documentation was entered into master alarm database for all alarms rationalized during the project.

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Challenge

Despite heavy investment in training to maintain SMC's industry-leading performance, the alarm load at the plant threatened operators effectiveness.

With almost 300 alarms an hour on average across operations and utilities, operators were unable to respond to all of them. The stress on operators also mitigated against effective responses where they were able to act. Solution

A number of system-independent Honeywell solutions were employed:

- Documentation and Enforcement software offering smooth integration with Experion, redundant enforcement and a robust audit trail
- Metrics and Reporting software that collects and stores all alarm and event data, monitors alarm system performance, and diagnoses alarm problems via intuitive reports
- Software for the management of overrides and for use as an operator log book
- Honeywell Universal Architecture (UA), OPC standard for a cohesive, secure and reliable cross platform framework for accessing real time and historical data and events.

After implementing the data collector and alarm management system, rationalization of 60 bad actors was completed. These settings were configured in the master alarm database, while mode-based alarms for 20 pieces of equipment were configured in the DCS and the documentation and enforcement software.

The rationalization, which cut the number of alarms by more than 10 times, was completed on time and on budget.

Involving SMC's Operation department right from the beginning of the project helped set expectations clearly and was key to its success. It will also help as the plant prepares to embark on the next phase of the project: an ambitious in-house alarm rationalization that will seek to cut the average alarm rate further to just 6-12 alarms per hour, with peaks of a maximum of 10-15 in 10 minutes and only 1-3% of hours exceeding 30 alarms.

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